

GREAT SALT LAKE MINERALS & CHEMICALS CORPORATION
A SUBSIDIARY OF GULF RESOURCES & CHEMICAL CORPORATION
P.O. BOX 1190 • 765 N. 10500 W. LITTLE MOUNTAIN • OGDEN, UTAH 84402 TEL. (801) 731-3100 • TWX (910) 971-5910

To See ✓
File ACT/057/002
JWS
3-7-83

March 4, 1983

MAX J. REYNOLDS
VICE PRESIDENT OPERATIONS

Mr. James W. Smith, Jr.
Coordinator of Mined Land Development
State of Utah
Natural Resources & Energy
4241 State Office Building
Salt Lake City, UT 84194

Re: Permitting Little Mountain Mine
ACT/057/002
Weber County, Utah

Dear Mr. Smith:

Please find attached the additional information requested concerning Mine Reclamation with supporting documents not previously transmitted. There are two documents which will be forwarded next week as discussed with Susan Linner. These are the Salvage Bid and the Surety Contract which have not yet been received from the contractor and legal department. I expect them early next week.

We have attempted to answer, item by item, those questions raised in your letter of April 5.

If further discussions are required, please let us know.

Sincerely,

M J Reynolds

Max J. Reynolds

MJR:dh

Attachments

RECEIVED
MAR 07 1983

DIVISION OF
OIL GAS & MINING

MINE RECLAMATION PLAN

I. Description of GSL's Facilities and Operations

GSL operates a solar evaporation complex to extract, via solar evaporation, minerals from the brines of the Great Salt Lake. The complex consists of a brine supply system, 19,500 acres of ponds and processing and support facilities.

The solar ponds are located on part of 89,000 acres of lands leased from the State of Utah under mineral lease agreements numbers ML 19024, 19059, 21708, 22782, 23023, 24189, 24631, 25384 and 25859. (A copy of one of these lease agreements was forwarded to you on September 2, 1982.)

The brine is pumped from the Great Salt Lake under water rights granted by the State of Utah. (Copies of all State permits for points of diversion and discharge of water and brines were forwarded to you on September 2, 1982.)

The extraction of minerals from the brine on the leased lands is covered by a royalty agreement with the State of Utah (Copy forwarded September 2, 1982). The terms of the mineral lease are connected to the duration of the royalty agreement which lasts as long as minerals are produced and sold from the land and a minimum royalty is paid to the State.

The total mineral reserves in the Great Salt Lake are sufficient to provide raw material for GSL's facilities including planned expansion and existing other producers at the lake for about 200 years. An expansion of GSL's system to a total of 34,000 acres is in process and the necessary permits have been obtained from State and Federal agencies through the US Army Corps of Engineers (copy attached).

Presently the following products are produced and marketed:

Sulfate of Potash	K_2SO_4
Sodium Sulfate	Na_2SO_4
Sodium Chloride	Na_2Cl_2
Magnesium Chloride	$MgCl_2$

Future products from minerals extracted from the lake are possible and planned. All unused minerals in the pond system or in the plant effluent are returned to the lake as provided in the Royalty Agreement.

The solar pond complex consists of pumping stations, pipelines, wood flumes, timber bridges, weirs, canals and pond dikes. The present 19,500 acre system includes approximately 155 miles of dikes, roads and 18 pump stations.

The brine is pumped from the north arm of the lake at the southwest corner of Promontory peninsula by pump station No. 1 and transferred through a flume and canal to ponds on the east side of Promontory. Pump station No. 2 lifts the brine into a flume on a bridge across the Bear River. The brine is then distributed through the evaporation system. As the brine flows from pond to pond, water evaporates and minerals precipitate on the pond floors. Through proper brine handling, selected minerals accumulate in designated ponds to provide the raw materials for the processing plants. The minerals are harvested by special equipment and trucked to the plant site for processing.

All structures are made of timber with the exception of buildings. The dikes are built from imported rock or gravel material in combination with locally borrowed clay soil.

Before construction of the dikes, the pond area was a mud flat with essentially no vegetation present. Depending on the level of the lake, more or less of the area was inundated by the lake. The imported borrow material was excavated from borrow pits located on fee land at Little Mountain and Promontory. Some 95 percent of the area covered by ponds was undisturbed during construction of the ponds. The minerals precipitated on the soil during evaporation do not disturb the soil and can be redissolved with water to expose the undisturbed pond floor. This is done routinely to dispose of the large volumes of salt precipitated in the ponds which cannot be sold economically as required under the lease agreement.

The lease agreement with the State of Utah provides that in the case of cessation of operations leasee may remove all personal property, equipment, machinery, buildings and tools from the land.

The processing and support facilities are located on land owned by GSL. The land is contiguous to Little Mountain Industrial Park, developed by Southern Pacific Railroad. The area is zoned M-3 for heavy industry by Weber County.

GSL's property is served by Southern Pacific and Union Pacific Railroads, a county road, two high tension power lines provided by UP&L, and natural gas by Mountain Fuel. Industrial water is transferred via canal from Willard Bay reservoir. The reservoir is operated by Weber Basin Water Conservancy District which also provides potable water to the industrial park. GSL presently gets its potable water from developed wells. The park has created its own sewage district with treatment plant. GSL is at this time not using the sewer district.

II. Mine Operations & Reclamation

The following additional information is submitted per agreement in our last meeting of January 21, 1983, which addresses those concerns by the "Rule number of the Act" not adequately covered with the information submitted on September 2, 1982.

Rule M-3 (1)

Drawing No. 100-11-5-088 submitted on September 2, shows the total pond configuration, dikes and flow structures.

A map of the plant site Drawings No. 820-01-5-008, 800-11-5-012, 800-06-5-009, 800-06-5-001, and 00-50-126, show all administrative, process and storage facilities. Sanitary treatment facilities are marked consisting of underground septic tanks and associated fields.

Drawing No. 800-11-5-019 shows the existing borrow pits with acreage so marked.

A copy of effluent quality, water quality information was forwarded to you on September 2, 1982. Except for the plant site, which is located on

on Little Mountain, all surrounding lands are inundated by ground water which is a function of lake level. All lands drain to the lake naturally.

Rule M-3 (2)

(b) Possible postmining land-uses:

Brine Supply and Pond System

In case of cessation of operations due to reasons other than flooding of the area by the lake, GSL will negotiate with State agencies to transfer the system to the State for wildlife management per the State Land Board stipulation which states "Said lands being lands which the State Fish and Game Commission is authorized to use for creation, operation, maintenance, and management of bird refuges, sanctuaries, public shooting grounds, fishing waters and other recreational activities provided by Section 23-8-1 Utah Code Annotated, 1953." The pond system is well suited for waterfowl management after all remaining deposits are redissolved and flushed back into the lake.

Any and all structures and equipment not suitable for these purposes will be removed from the land. All dikes and roads will remain in place.

If the area is not accepted as a wildlife management area, all structures and equipment will be removed. Dikes will be breached at certain points in the pond system which will allow flow and circulation of water to remove salt deposits. All dikes and roads will remain in place and wave action over time will wash-out and level dikes.

In case operations are terminated by flooding, all structures and equipment will be removed. Dikes and roads will remain in place. Wave action will in turn wash-out and level the dikes.

Complete removal of all dikes is technically very difficult, uneconomical and will not make the area more useful for other purposes. This area is frequently inundated as the lake level fluctuates, therefore, little or no natural vegetation is present.

Plant Site

The 500 acre plant site and structures of GSL Corporation are considered a part of a zoned and regulated industrial park (see Weber County Industrial Development Corporation Resolution attached) and as such, are viable for continued use of and marketable. No plans to return the area to original conditions have been made.

Borrow Pits

Borrow pits will be left in a non-dangerous condition. All equipment and structures will be removed. Gravel face will be sloped to 3:1. Rock faces will be sloped to match similar natural rock outcroppings in the vicinity. Area will be contoured to prevent impoundment of water.

(e) Revegetation

Brine Supply and Pond System

No vegetation is required since the area is a salt and sand playa with little or no vegetation present. The frequent inundation of the area by rising lake level prohibits vegetation from growing.

Plant Site

Considered to be an industrial park with marketable continued use. No revegetation is planned.

Borrow Pits

Topsoil was not detectable in recoverable amounts when the pits were opened. Vegetation cover transects which were taken showed that vegetative cover averaged approximately 30 percent. After recontouring of the site, the area will be roughened and seeded with species which are generally adopted to the dry, saline conditions present on the site.

Maintenance of the existing ponds system will require approximately 50,000 yards of borrow material annually. The existing borrow areas contain sufficient material to meet these requirements. Additional materials could come from privately owned borrow pits in the immediate area as required but is not anticipated.

DIVISION OF OIL, GAS, AND MINING

SURETY ESTIMATE

OPERATOR:

MINE NAME: Great Salt Lake Minerals & Chemicals Corporation

LOCATION: 765 North 10500 West, Ogden, Utah

COUNTY: Weber

DATE: March 4, 1983

	Operation	Amount	Rate	Cost
A.	CLEAN-UP - Ponds & Brine Supply	Salvage Contract	See Bid Sheet	\$125,000
	1. Removal of structures & equipment.		(Attached)	
	2. Removal of trash & debris.			
	3. Breaching of ancillary facilities pads and dike roads.	40 Cat hours	\$65/hour	2,600
B.	REGRADEING & RECONTOURING - Borrow Pit Areas			
	1. Earthwork including haulage and grading of spoils, waste and overburden.	N/A	-	-
	2. Recontouring of highwalls and excavations.	40 Cat hours	\$65/hour	2,600
	3. Spreading of soil or surficial materials.	N/A	-	-
C.	STABILIZATION			
	1. Soil preparation, scarification, fertilization, etc.	20 Cat hours	\$65/hour	1,300
	2. Seeding or planting.	2 Man days.	\$100/day	200
	3. Construction of terraces, waterbars, etc.	N/A	-	-
D.	LABOR			
	1. Supervision.	Included in the above figures		
	2. Labor exclusive of bulldozer time.			
E.	SAFETY			
	1. Erection of fences, portal coverings, etc.	N/A	-	-
	2. Removal or neutralization of explosive or hazardous materials.	N/A	-	-
F.	MONITORING			
	1. Continuing or periodic monitoring, sampling & testing deemed necessary.	3 year monitoring	\$200/year	600
G.	OTHER			

Mine: _____
Company: _____

File No: _____
Representative: _____

Address: _____

Division of Oil, gas and Mining
1588 West North Temple
Salt Lake City, Utah 84116

Re: Commitment to Rule M-10

Gentlemen:

I hereby commit the applicant to comply with Rule M-10, "Reclamation standards" in its entirety, as adopted by the Board of Oil, Gas, and Mining on March 22, 1978.

The applicant will achieve the reclamation standards for the following categories as outlined from Rule M-10 on all areas of land affected by this mine, unless a variance is granted in writing by the Division.

<u>Rule</u>	<u>Category of Commitment</u>
M-10(1)	Land Use
M-10(2)	Public Safety and Welfare
M-10(3)	Impoundments
M-10(4)	Slopes
M-10(5)	Highwalls
M-10(6)	Toxic Materials
M-10(7)	Roads and Pads
M-10(8)	Drainages
M-10(9)	Structures and Equipment
M-10(10)	Shafts and Portals
M-10(11)	Sediment Control
M-10(12)	Revegetation
M-10(13)	Dams
M-10(14)	Soils

I believe a variance is justified on a site-specific basis for the following subsections of Rule M-10 for reclamation on this mine and have enclosed as an attachment to this letter a narrative statement setting forth a description of the extent of the variance request and factual reasons for said variance request.

Rule

Category of Variance Request
See (Narrative Attached)

M-10(1)

Plant Site as Industrial Park

M-10(3)

Utah Wildlife Agreement - Impoundments

M-10(4)

Soils - No Importation - Sparse Vegetation

STATE OF Utah

COUNTY OF Weber

I, Max J. Reynolds, having been duly sworn depose and attest that all of the representations contained in the foregoing application are true to the best of my knowledge; that I am authorized to complete and file this application on behalf of the Applicant and this application has been executed as required by law.

Signed: Max J. Reynolds 3/4/83

Taken, subscribed and sworn to before me the undersigned authority in my said county, this 4th day of March, 19 83.

Notary Public:

Debra K. Thomas

My Commission Expires: 5-29-83



VARIANCE REQUEST NARRATIVE

Rule M-10(1)

The 500 acre plant site and structures are considered a part of a zoned and regulated industrial park. This facility contains its own cogeneration power plant facility backed up by two high power transmission lines from UP&L. It is served by both the Southern Pacific and Union Pacific railroads. All utilities including potable water, sanitary services, natural gas and process water are available. Therefore, the facility is very marketable and viable for continued use.

A copy of a "Resolution" from the Weber County Industrial Development Corporation supporting these facts is attached for your review.

Rule M-10(2)

The lease agreement with the State of Utah includes the following State Land Board stipulation:

"Said lands being lands which the State Fish and Game Commission is authorized to use for creation, operation, maintenance and management of bird refuges, sanctuaries, public shooting grounds, fishing waters and other recreational activities provided by Section 23-8-1 Utah Code Annotated, 1953."

These lands are contiguous to the Willard Bay and Harold Crane bird refuges and are readily adaptable to similar use once the salts are dissolved from the floors.

The pond expansion permitting includes flow control structures at the Bear River crossing which will be utilized to control water levels in the bay area for waterfowl during low lake levels. Access to these structures will only be accessible via the existing roads.

Several agencies find frequent use of the access roads across Bear River to Promontory Point. These agencies include the Utah Wildlife Resources Division, U.S.G.S., Hill Field Rescue/Recovery Services, and other geological institutions. The only other access to the Promontory areas is travel north through Tremonton some 76 additional miles.

Rule M-10(4)

Topsoil was not detectable in amounts recoverable when the borrow pits were opened. Only sparse vegetation exists in the surrounding area which are adapted to the dry, saline conditions which exist at these sites.

Recontouring of the site and seeding should be sufficient to restore these areas to match the sparsely vegetated areas surrounding the pits as evidenced by the natural revegetation occurring in several areas of the pits which have not been worked for the past couple of years. No importation of soils, which are not available anyway in the area, is required.